



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,604	12/11/2003	Keith P. Bargroff	RFMAGIC.003A	1478
30499	7590	03/31/2006	EXAMINER	
CLIFFORD B. PERRY 132 N. EL CAMINO REAL, #347 ENCINITAS, CA 92024-2801			HAROON, ADEEL	
			ART UNIT	PAPER NUMBER
			2618	

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/734,604		BARGROFF ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Adeel Haroon		2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____   | 6) <input type="checkbox"/> Other: ____                                     |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 9, 10, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Lo et al. (U.S. 6,987,958).

With respect to claim 1, Lo et al. disclose an integrated circuit having N-input by M-output crosspoint switch, element number 210, configured to route an input signal at any one of the N inputs to any one of the M outputs (Column 3, lines 16-20). Lo et al. teach setting the impedance of the switches (Column 4, line 67 – Column 4, line 12). Lo et al. also disclose M band translation devices, element numbers 215 and 220, each of M band translation devices connected to an output of the N input switch and configured to selectively frequency translate from the output of the N input switch (Column 3, lines 20-31).

With respect to claim 2, Lo et al. disclose that the N input switch comprises N groups of M switches, switching elements, in figure 3. Lo et al. teach each switch having inputs connected to a separate one of the N inputs and having outputs connected to a separate one of the M band translation devices (Column 3, lines 40-50).

With respect to claims 3 and 4, the switching element of Lo et al. in figure 3 is capable of being used as both in voltage mode and current mode with high and low impedance output (Column 3, line 52 – Column 4, line 12).

With respect to claim 5, the switching element of Lo et al. is interpreted as a transconductance device as shown in figure 3 (Column 3, lines 40-50).

With respect to claim 6, Lo et al. disclose the switching element being selectively enabled or disabled based on a control signal (Column 3, lines 16-20).

With respect to claim 9, Lo et al. disclose using different types of architecture for the receivers, which would include the use of differential signals (Column 4, lines 15-23).

With respect to claim 10, Lo et al. disclose frequency translating a signal from one frequency band to another (Column 4, lines 15-23).

With respect to claim 14, Lo et al. teach a method of routing signals in a signal distribution system. Lo et al. disclose receiving a signal and generating an intermediate signal (Column 3, lines 7-12). Lo et al. teach setting the impedance of the circuit (Column 4, line 67 – Column 4, line 12). Lo et al. also disclose providing the intermediate signal to the input of a current source, element number 210 (Column 3, lines 40-50). Lo et al. disclose selectively enabling the current source to provide an

output current signal (Column 3, lines 16-20). Lo et al. further disclose frequency translating a signal at the output of the transconductance device from a first frequency band to another (Column 4, lines 15-23).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lo et al. (U.S. 6,987,958).

With respect to claim 7, the integrated circuit of Lo et al. is described above in the discussion of claims 1 and 2. Lo et al. do not expressly disclose the isolation of the switch being greater than 30 dB. However, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to provide an isolation of greater than 30 dB in order to avoid unwanted return loss in the switch.

5. Claims 8, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo et al. (U.S. 6,987,958) in view of Briskman (U.S. 5,319,673).

With respect to claim 8, the integrated circuit of Lo et al. is described above in the discussion of claim 1. Lo et al. do not expressly disclose an amplifier being connected to the inputs of the switch. However, Briskman discloses a RF signal distribution system. Briskman discloses a system with an amplifier at the input of a dividing circuit to separate the incoming signal into two different paths (Column 5, lines 35-38). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to include an amplifier as taught by Briskman in the system of Lo et al. in order to provide a stronger signal to the input of the switch.

With respect to claim 11, Lo et al. disclose an integrated circuit having a crosspoint switch, element number 210, with band translation for use in an RF signal distribution system (Column 3, lines 16-20). Lo et al. teach setting the impedance of the circuit (Column 4, line 67 – Column 4, line 12). Lo et al. disclose a first and second transconductance devices, switching elements, in figure 3 (Column 3, lines 40-50). Lo et al. also disclose a first and second band translation devices, element numbers 215 and 220, having an output and an input connected to the first and second transconductance devices, respectively (Column 3, lines 20-31). Lo et al. teach using different types of architecture for the receivers, which would include the use of differential signals (Column 4, lines 15-23). Lo et al. do not expressly disclose an amplifier being connected to the inputs of the transconductance devices. However, Briskman discloses a RF signal distribution system. Briskman discloses a system with an amplifier at the input of a dividing circuit to separate the incoming signal into two different paths (Column 5, lines 35-38). Therefore, it would be obvious to one of

ordinary skill in the art at the time of the applicant's invention to include an amplifier as taught by Briskman in the system of Lo et al. in order to provide a stronger signal to the input of the transconductance devices.

With respect to claim 12, Lo et al. teach a switch that acts like a controllable current source configured to selectively enable and disable the first transconductance device in figure 3 (Column 3, lines 16-20).

With respect to claim 13, Lo et al. teach a method of routing signals in a signal distribution system. Lo et al. disclose receiving a signal (Column 3, lines 7-12). Lo et al. teach setting the impedance of the circuit (Column 4, line 67 – Column 4, line 12). Lo et al. also disclose selectively routing the received signal using a first and second transconductance devices in element number 210 (Column 3, lines 40-50). Lo et al. further disclose frequency translating a signal at the output of the transconductance device from a first frequency band to another (Column 4, lines 15-23). Lo et al. do not expressly disclose an amplifier being connected to the inputs of the transconductance devices. However, Briskman discloses a RF signal distribution system. Briskman discloses a system with an amplifier at the input of a dividing circuit to separate the incoming signal into two different paths (Column 5, lines 35-38). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to include an amplifier as taught by Briskman in the system of Lo et al. in order to provide a stronger signal to the input of the transconductance devices.

**Conclusion**


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Thompson et al. (U.S. 6,584,304) disclose a switch able front end of a multimode receiver. Philips et al. (U.S. 6,072,994) disclose a configurable multifunction radio system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adeel Haroon whose telephone number is (571) 272-7405. The examiner can normally be reached on Monday thru Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AH  
3/28/06

  
3/29/2006

**NGUYENT.VO  
PRIMARY EXAMINER**